REMARKS

In view of the following reasoning for allowance, the applicants hereby respectfully request further examination and reconsideration of the subject application.

A. Request for an Examiner Interview

The applicant's representative respectfully requests an Examiner Interview prior to the Examiner responding to this After Final Amendment.

B. Allowability of Claims 6 and 15

Claims 6, 15 and 22 were rejected under 35 USC 112, second paragraph, as being indefinite in the first Office Action. The applicants amended these claims to clarify any indefiniteness that existed in the original claim language. It is assumed that the 35 USC 112 second paragraph rejections are withdrawn, as there was not a repeated rejection of these claims under 35 USC 112 second paragraph in the final Office Action. In fact, there was no rejection of Claims 6 and 15 at all in the final Office Action. As such, it is presumed that these claims are allowable. The applicants have amended claim 6 to include the limitations of Claim 1, so that Claim 6 is now in condition for allowance. The applicants have further amended Claim 10 to include the limitations of allowable Claim 15, so that claims 10-22 are now in condition for allowance. Additionally, the applicants have amended Claim 23 to include the allowable subject matter of Claims 6 and 15. It is believed that Claims 23-25 are also now allowable due to this amendment. Allowance of these claims is respectfully requested.

C. Response to Arguments.

The Examiner states that the Applicant's arguments filed May 19, 2008 are not persuasive.

The Examiner states in response to the applicants arguing that both the Tyree and Mori references do not teach the applicant's claimed "requiring a computer user to locate at least one feature of said one or more deformed body parts in the image", "In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking the references where the rejections are based on combinations of references..." But the applicant is not arguing the references individually, but is pointing out that since both Tyree and Mori does not teach the claim limitation of "requiring a computer user to locate at least one feature of said one or more deformed body parts in the image", the combination does not teach it. **Nor do Tyree and Mori teach comparing the computer user's locations of the at least one feature of said one or more body deformed parts to their known location in the image; and determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location**

More specifically, in order to deem the applicants' claimed invention unpatentable under 35 USC 103, a prima facie showing of obviousness must be made. **To make a prima facie showing of obviousness, all of the claimed elements of an applicants' invention must be considered, especially when they are missing from the prior art. If a claimed element is not taught in the prior art and has advantages not appreciated by the prior art, then no prima facie case of obviousness exists.** The Federal Circuit court has stated that it was error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein (*In Re Fine*, 837 F.2d 107, 5 USPQ2d 1596 (Fed. Cir. 1988)). **Neither Tyree nor Mori teach the above discussed claim limitations, so the combination dooes not teach it.** Hence, there is no prima facie case of obviousness.

The Examiner in item #6 discusses "The claim" but it is not entirely clear to the applicant which claim is referred to. It is assumed for purposes of this response that "the claim" refers to Claim 1. With respect to this claim, the specification at least at paragraph 17 dilineates the features and known locations. The applicant is not clear as to the Examiner's intention regarding item #6, however, the applicants have

amended Claim 1 to specify that that the certain features are certain features of the deformed body parts, hoping to clarify any confusion.

The Examiner further argues at item #7 of the final Office Action, that KSR forecloses the argument that a specific teaching, suggestion or motivation is required to support a finding of obvious. However, the applicant argues missing elements from the combination of the cited art, as well as that there is no teaching, motivation or suggestion to combine the teachings of Tyree and Mori because the Tyree and Mori inventions are in entirely different fields, address entirely different problems, and nothing in one would suggest the other. The Examiner appears to suggest that since in Mori the program can locate key points in an undistorted body, it would be implied that it can locate key features in the image if it was distorted. The applicants respectfully disagree. There is nothing in Mori or Tyree to suggest this implication. Nor is there anything to suggest that if the program in Mori can locate points in an undistorted image this implies that a user can locate points in a distorted image. The Examiner points to FIG. 5 of Tyree and states that Tyree teaches a distorted image is generated. But there is nothing related to FIG. 5 or in Tyree and Mori that suggests a user can locate points in a distorted image. Nor is there antying in Tyree and Mori to suggest the comparison of a user's location of features in a distorted image to known location of features in the image to determine whether a computer user is a person or a bot.

As to item #9 of the final Office Action, with respect to Claim 23, the applicants have amended claim 23 to incorporate the allowable claim limitations of claims 6 and 15, so that Claim 23, and the claims that depend from it are now allowable.

B. <u>The 35 USC 103 Rejection of Claims 1-4, 7-11, 13, 17-19, 21 and 22.</u>

Claims 1-4, 7-11, 13, 17-19, 21 and 22 were rejected under 35 USC 103(a) as being unpatentable over Tyree USPGPUB No. 2002/0120853) in view of Greg Mori et. al "Estimating Human Body Configurations using Shape Context Matching" (herein referred to as Mori. The Examiner contended that Tyree teaches all the elements of the applicants claims but does not teach the applicant's claimed image that contains body

parts, and location of such parts, but that Mori teaches an algorithm for locating keypoints within an undistorted image of a body, making the applicant's claimed invention obvious. The applicants respectfully traverse this contention of obviousness.

In order to deem the applicants' claimed invention unpatentable under 35 USC 103, a prima facie showing of obviousness must be made. To make a prima facie showing of obviousness, all of the claimed elements of an applicants' invention must be considered, especially when they are missing from the prior art. If a claimed element is not taught in the prior art and has advantages not appreciated by the prior art, then no prima facie case of obviousness exists. The Federal Circuit court has stated that it was error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein (*In Re Fine*, 837 F.2d 107, 5 USPQ2d 1596 (Fed. Cir. 1988)).

> "A computer-implemented process for determining whether a computer user is a human or a computer program, comprising the process actions of:
> **generating a human interactive proof employing an image of one or more deformed body parts wherein certain features of the deformed body parts are at known locations in said image;**
> **requiring a computer user to locate at least one feature of said one or more deformed body parts in the image;**
> **comparing the computer user's locations of said at least one feature of said one or more body deformed parts to their known location in the image; and**
> **determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location."**

And,

> "A system for creating a Human Interactive Proof using an image of a face, the system comprising:
> a general purpose computing device; and
> a computer program comprising program modules executable by the computing device, wherein the computing device is directed by the program modules of the computer program to,
> **generate a human interactive proof employing an image of a deformed human face wherein certain features of the deformed human face are at known locations in said image, wherein the module for generating a human interactive proof comprises sub-modules for:**
> **inputting a first texture map, T_m, and a generic model of a face;**
> **generating a confusion texture map, T_c, which distributes features of the face differently than from the first texture map;**

generating a transformation of a pose of the face using said generic model;

performing local deformations to features of the face;

generating an image, F_h, with a deformed and transformed mesh with the first texture applied;

generating an image, F_c, with the deformed and transformed mesh with the confusion texture map applied;

generating an image, I_1, with F_c as background and a shrunken F_h as foreground;

generating an image, I_2, by making L copies of the confusion texture map that are scaled down in size and put into I_1 with varying sizes and locations;

generating an image, I_3, by

making a number of copies of F_c and randomly putting these copies of F_c into I_2;

dividing the image, I_3, into M+1 regions, where M of the regions come from F_c and one region comes from F_h;

calculating the average intensity of the M regions and remapping the intensity of each region such that the average intensities are uniformly distributed across the M+1 regions;

randomly dividing each of the M+1 regions, said region into four quadrants and increasing the intensity of some quadrants, while decreasing the intensity of other quadrants; and

generating a final image, I_F, to be used as the image of the human interactive proof employing an image by making N copies of [[the]] feature regions in F_h and randomly putting said N copies into I_3 to generate the final test image I_F;

require a computer user to locate certain features of said deformed face in the image;

compare the computer user's locations of said features of said deformed face to their actual location in the image; and

determine whether the computer user is a human or a bot based on the comparing."

In contrast, Tyree teaches a technique that can include a test performed by a computer to determine whether a requestor of resources is a human user or a computer software scripted agent. If the test is passed, then the computer of the present invention assumes that the requestor of resources is a valid human user and access to resources is granted. It can be used for controlling access to resources. In an exemplary embodiment the method can include the steps of receiving a request from an entity; presenting the entity with a test; determining from the test whether or not the entity is an intelligent being; and granting the request only if the entity is determined to be an intelligent being. (Abstract) **However, Tyree does not teach the applicant's "requiring a computer user to locate at least one feature of said**

one or more deformed body parts in the image". In fact, Tyree doesn't require a user to identify any points or locations in an image. Nor does Tyree teach comparing the computer user's locations of the at least one feature of said one or more body deformed parts to their known location in the test image; and determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location.

Mori teaches taking a single two-dimensional image containing a human body, locating the joint positions, and use these to estimate the body configuration and pose in three-dimensional space. The basic approach is to store a number of exemplar 2D views of the human body in a variety of different configurations and viewpoints with respect to the camera. On each of these stored views, the locations of the body joints (left elbow, right knee etc) are manually marked and labelled for future use. The test shape is then matched to each stored view, using the technique of shape context matching. Assuming that there is a stored view sufficiently similar in configuration and pose, the correspondence process will succeed. The locations of the body joints are then transferred from the exemplar view to the test shape. Given the joint locations,the 3D body configuration and pose are then estimated. **However, Mori does not teach the applicant's claimed "requiring a computer user to locate at least one feature of said one or more deformed body parts in the image". Nor does Mori teach comparing the computer user's locations of the at least one feature of said one or more body deformed parts to their known location in the image; and determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location.**

It is also the applicants position that the reasoning as to obviousness presented in the Office Action is flawed. There is nothing to teaching, motivation or suggestion to combine the teachings of Tyree and Mori. The Tyree and Mori inventions are in entirely different fields, address entirely different problems, and nothing in one would suggest the other.

The Examiner appears to suggest that since in Mori the program can locate key points in an undistorted body, it would be implied that it can locate key features in the image if it was distorted. There is nothing in Mori to suggest this implication.

The MPEP states at Section 2112, Part IV (Page 2100-54, Rev 2, May 2004) that:

> "**The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.** *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). **"To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'** " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) ....."**In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.**" *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added)

The Examiner has not shown that the claimed feature of the applicant's claimed "**requiring a computer user to locate at least one feature of said one or more deformed body parts in the image"** is taught either expressly or inherently in the Tyree or Mori references. **The reasoning for obviousness is flawed in that neither reference teaches a user locating features of deformed body parts in an image and comparing these user-identifed features to determine if a user is a computer or a bot. As shown above, the teachings of Mori would not suggest to a person of ordinary skill in the art that a computer user should be**

required to locate at least one deformed feature of said one or more body parts in the image. Rather the circumstances of the Mori would suggest just the opposite. In Mori a user is used to mark the undeformed features in order to locate the correct parts in order to create a three-dimensional image from two or more two-dimensional ones. There simply is no need for deformed image in Mori and nothing in Mori suggests deforming an image. **The mere possibility that Mori could lead someone to think of a way of generating a deformed image is not enough to establish inherency. There must be some teaching that makes the missing element necessary to the described invention of Mori. However, there is no such teaching. Therefore, the claimed features are not inherent in the teaching of Mori.**

Since neither Tyree nor Mori teach the applicants' claimed requiring a computer user to locate at least one feature of said one or more deformed body parts in the image; comparing the computer user's locations of the at least one feature of said one or more body deformed parts to their known location in the image; and determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location, the combination does not teach it. Nor do Mori and Tyree teach the allowable claim limitations of generating the human interactive proof. Additionally, the Tyree nor Mori references do not teach the advantageous features of the applicants' claimed invention such as providing a more difficult proof to determine if a an entity performing a HIP is a person or a bot. Accordingly, no prima facie case of obviousness has been established in accordance with the holding of *In Re Fine*. This lack of prima facie showing of obviousness means that the rejected claims are patentable under 35 USC 103 over Tyree in view of Mori. As such, it is respectfully requested that Claims 1-4, 8-11, 13, 17-19, 21 and 22 be allowed based on the above-refernced novel and non-obvious claim language.

C. The 35 USC 103 Rejection of Claim 5.

Claim 5 was rejected under 35 USC 103(a) as being unpatentable over Tyree USPGPUB No. 2002/0120853) in view of Mori and in further view of Luis von Ahn et al. "CAPTCHA: Using Hard AI Problems for Security" hereinafter referred to as Ahn. The Examiner contended that Tyree and Mori teach all the elements of the applicants claims but do not teach the applicant's claimed use of a HIP for online polls, email account services, search engines which are examples of network resources and storage facilities. The Examiner contended it would have been obvious to combine the teachings of Tyree and Mori with Ahn, rendering the applicants claimed invention obvious. The applicants respectfully disagree with this contention of obviousness.

The applicants claim,

"A computer-implemented process for determining whether a computer user is a human or a computer program, comprising the process actions of:

generating a human interactive proof employing an image of one or more deformed body parts wherein certain features of the deformed body parts are at known locations in said image;

requiring a computer user to locate at least one feature of said one or more deformed body parts in the image;

comparing the computer user's locations of said at least one feature of said one or more body deformed parts to their known location in the image; and

determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location."

As discussed above, neither Tyree nor Mori teach **the applicants' claimed requiring a computer user to locate at least one feature of the one or more deformed body parts in the image; comparing the computer user's locations of the at least one feature of said one or more body deformed parts to their known location in the image; and determining whether the computer user is a human or a computer program using the comparison of the computer user's location of said at least one feature to the known location. Ahn also does not teach these limitations, so the combination of Tyree, Mori and Ahn do not teach them.** Additionally, the Tyree, Mori and Ahn references do not teach the advantageous features of the applicants' claimed invention such as providing a more difficult proof to determine if a an entity performing a HIP is a person or a bot.

Accordingly, no prima facie case of obviousness has been established in accordance with the holding of *In Re Fine*. This lack of prima facie showing of obviousness means that the rejected claim is patentable under 35 USC 103 over Tyree in view of Mori and Ahn. As such, it is respectfully requested that Claim 5 be allowed based on the aforementioned novel and non-obvious claim language.

D. The 35 USC 103 Rejection of Claims 12, 16, 20 and 23-25.

Claims 12, 16, 20 and 23-25 were rejected under 35 USC 103(a) as being unpatentable over Tyree in view of Mortlock et al., U.S. Patent No. 6,549,200 (hereinafter referred to as Mortlock). The Examiner contended that Tyree teaches all of the elements of the applicants' claims but does not teach the applicant's claimed image of a distorted face embedded in a cluttered background. The Examiner contended that Mortlock discloses the ability to create an image of a human head/face making the applicants' claimed invention obvious. The applicants respectfully traverse with this contention of obviousness.

The applicants claim,

"A system for creating a Human Interactive Proof using an image of a face, the system comprising:
a general purpose computing device; and
a computer program comprising program modules executable by the computing device, wherein the computing device is directed by the program modules of the computer program to,
generate a human interactive proof employing an image of a deformed human face wherein certain features of the deformed human face are at known locations in said image, wherein the module for generating a human interactive proof comprises sub-modules for:
inputting a first texture map, T_m, and a generic model of a face;
generating a confusion texture map, T_c, which distributes features of the face differently than from the first texture map;
generating a transformation of a pose of the face using said generic model;
performing local deformations to features of the face;
generating an image, F_h, with a deformed and transformed mesh with the first texture applied;
generating an image, F_c, with the deformed and transformed mesh with the confusion texture map applied;
generating an image, I_1, with F_c as background and a shrunken F_h as foreground;

generating an image, I_2, by making L copies of the confusion texture map that are scaled down in size and put into I_1 with varying sizes and locations;

generating an image, I_3, by

making a number of copies of F_c and randomly putting these copies of F_c into I_2;

dividing the image, I_3, into M+1 regions, where M of the regions come from F_c and one region comes from F_h;

calculating the average intensity of the M regions and remapping the intensity of each region such that the average intensities are uniformly distributed across the M+1 regions;

randomly dividing each of the M+1 regions, said region into four quadrants and increasing the intensity of some quadrants, while decreasing the intensity of other quadrants; and

generating a final image, I_F, to be used as the image of the human interactive proof employing an image by making N copies of feature regions in F_h and randomly putting said N copies into I_3 to generate the final test image I_F;

require a computer user to locate certain features of said deformed face in the image;

compare the computer user's locations of said features of said deformed face to their actual location in the image; and

determine whether the computer user is a human or a bot based on the comparing."

And,

"A computer-readable medium having computer-executable instructions for creating a test to determine whether a user is a person or a bot, said computer executable instructions comprising:

inputting a 3D wire model of a generic head with a face and a first texture map of an arbitrary person; and

generating a human interactive proof using said generic head model and texture map by employing an image of a face wherein certain features are at known locations in said image, comprising:

inputting the first texture map, T_m, and the generic model of a head of said face;

generating a confusion texture map, T_c, which distributes features of the face differently than from the first texture map;

generating a transformation of a pose of said face using said generic model;

performing local deformations to features of said face;

generating an image, F_h, with the deformed and transformed mesh with the first texture applied;

generating an image, F_c, with the deformed and transformed mesh with the confusion texture map applied;

generating an image, I_1, with F_c as background and a shrunken F_h as foreground;

generating an image, I_2, by making L copies of the confusion texture map that are scaled down in size and put into I_1 with varying sizes and locations;

generating an image, I_3, by

making a number of copies of F_c and randomly putting these copies of F_c into I_2;

dividing the image into M+1 regions, where M of the regions come from F_c and one region comes from F_h;

calculating the average intensity of the M regions and remapping the intensity of each region such that the average intensities are uniformly distributed across the M+1 regions;

randomly dividing each of the M+1 regions, said region into four quadrants and increasing the intensity of some quadrants, while decreasing the intensity of other quadrants; and

generating a final image, I_F, to be used as the image of the human interactive proof employing an image by making N copies of the feature regions in F_h and randomly putting said N copies into I_3 to generate the final test image I_F."

Tyree does not teach the applicant's claimed generation of a human interactive proof employing an image of a human face wherein certain features of the deformed body parts are at known locations in said image, or the applicants' claimed specific actions of generating a human interactive proof.

Mortlock teaches an image representing a three-dimensional object that is modelled as a stored set of parameters representing a model of a three-dimensional object and at least two two-dimensional images of the object, each image representing the object from a unique direction of view (x, y, z). The parameters include parameters defining the positions of a plurality of vertex points in a virtual space and parameters defining relationships between vertex points and hence surface elements of the object. For at least a subset of the surface elements a measure relative to each direction of view is determined, each measure being representative of the deviation of the surface of the element from the normal to the direction of view. The direction of view which exhibits the least deviation is then identified and texture applied to the surface element from the two-dimensional image which corresponds to the identified direction of view. (Abstract) **However, Mortlock does not teach the applicant's claimed generation of a human interactive proof employing an image of a human face wherein certain features of the deformed**

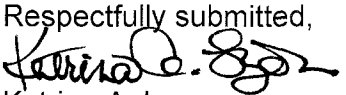
body parts are at known locations in the image, or the applicants' claimed specific actions of generating a human interactive proof.

Since neither Tyree nor Mortlock teach the applicants' claimed **generation of a human interactive proof employing an image of a human face wherein certain features of the deformed body parts are at known locations in the image, or the applicants' claimed specific actions of generating a human interactive proof, the combination does not teach it.** Additionally, the Tyree and Mortlock references do not teach the advantageous features of the applicants' claimed invention such as generating a more effective HIP by using body parts. Accordingly, no prima facie case of obviousness has been established in accordance with the holding of *In Re Fine*. This lack of prima facie showing of obviousness means that the rejected claims are patentable under 35 USC 103 over Tyree in view of Mortlock. As such, it is respectfully requested that Claims 12, 16, 20 and 23-25 be allowed based on the aforementioned exemplary novel and non-obvious claim language.

E. Summary.

In summary, it is believed that Claims 1-6, 8-9,10-14 and 16-25 are in condition for allowance. Allowance of these claims at an early date is courteously solicited.

Respectfully submitted,



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